BEFORE THE SOUTH CAROLINA PUBLIC SERVICE COMMISSION

DOCKET NO. 2018-319-E

DIRECT TESTIMONY

OF

KEVIN W. O'DONNELL, CFA

ON BEHALF OF THE

SOUTH CAROLINA ENERGY USERS COMMITTEE

February 26, 2019

TABLE OF CONTENTS

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is Kevin W. O'Donnell. I am President of Nova Energy Consultants, Inc. My business address is 1350 Maynard Rd., Suite 101, Cary, North Carolina 27511.

Q. ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS PROCEEDING?

A. I am testifying on behalf of the South Carolina Energy Users Committee (SCEUC). A number of SCEUC members take retail electric service from the applicant, Duke Energy Carolinas (DEC, Duke, or Company), and the outcome of this proceeding will have a direct bearing on these SCEUC members.

Q. WERE YOUR TESTIMONY AND APPENDIX PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Yes, they were.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND RELEVANT EMPLOYMENT EXPERIENCE.

A. I have a Bachelor of Science in Civil Engineering from North Carolina State University and a Master of Business Administration from the Florida State University. I earned the designation of Chartered Financial Analyst ("CFA") in 1988.

I have worked in utility regulation since September 1984, when I joined the Public Staff of the North Carolina Utilities Commission ("NCUC"). I left the NCUC Public Staff in 1991 and have worked continuously since then in utility consulting: first with Booth & Associates, Inc. as a financial analyst and then as

Director of Retail Rates for the North Carolina Electric Membership Corporation from 1994 to 1995, and since then as principal for my own consulting firm.

I have been admitted as an expert witness on rate of return, cost of capital, capital structure, cost of service, rate design, and other regulatory issues in general rate cases, fuel cost proceedings, and other proceedings before the following regulatory bodies: the North Carolina Utilities Commission; the South Carolina Public Service Commission; the Wisconsin Public Service Commission; the Maryland Public Service Commission; the Virginia State Commerce Commission; the Minnesota Public Service Commission; the New Jersey Board of Public Utilities; the Colorado Public Utilities Commission; the District of Columbia Public Service Commission; and the Florida Public Service Commission.

In 1996, I testified before the U.S. House of Representatives' Committee on Commerce and Subcommittee on Energy and Power, concerning competition within the electric utility industry. Additional details regarding my education and work experience are set forth in Appendix A of this testimony.

II. PURPOSE OF TESTIMONY

Q. PLEASE DESCRIBE THE SCOPE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony in this proceeding is to present my findings and recommendations to the Commission as to the following issues:

- the trend in DEC industrial rates in South Carolina and the associated impact on the state's economy;
- DEC's proposed pre-payment grid investment plan;
- the appropriate amount of coal ash expense to be included in DEC's rates;
- DEC's hourly pricing should be set at the lower of the Company's marginal cost or the price as set by the open wholesale power market;
- Duke's continued operational issues involving reported fines from federal regulators and the Company's poor reputation amongst business customers

III. SUMMARY/RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS IN THIS CASE.

A. My findings are as follows:

- DEC's manufacturing rates are rising faster than the southeastern and national averages and, given the stated rate increases on the horizon, Duke will be above the national average thereby costing South Carolina its competitive edge in areas served by the Company;
- DEC's proposed grid expenditures are too expensive, lack customer support, are not sufficiently differentiated from current costs embedded in Duke's rates, will be an unnecessary burden on ratepayers, and should be disallowed;
- The Commission should follow the examples set by other regulatory jurisdictions and establish a separate proceeding to obtain public input into the grid modernization costs the public is willing to pay and the associated benefits that will result from those rate increases;
- the Commission should disallow certain coal ash costs; and
- DEC's hourly pricing rates should be capped at the lower of DEC's costs or the market cost.

IV. DISCUSSION

Q. WHAT IS THE TOTAL RATE HIKE REQUESTED BY DUKE ENERGY CAROLINAS IN THIS RATE CASE?

A. According to paragraph 49 of the Company's application in this case, the Company is seeking a net increase of $168 million that accounts to an overall increase of 10%. However, this stated increase does not tell the entire story as the Company is also seeking to return to customers consumer money associated with the return of excess deferred income taxes (EDIT). The true increase can be found

in Application Exhibit D which shows a total increase of $230 million, which equates to an overall increase of approximately 14%.

Q. PLEASE EXPLAIN EXCESS DEFERRED INCOME TAXES (EDIT).

A. Excess deferred income taxes (EDIT) are taxes that consumers have paid to the utility in prior years that were planned to be paid by the utility in future years. Excess deferred taxes are, essentially, a product of the tax difference between accelerated depreciation and straight line depreciation. In ratemaking, taxes are calculated using straight line depreciation. However, in reality, the utility uses accelerated depreciation to calculate its taxes and, therefore, pays lower taxes than is the case with straight line depreciation used for ratemaking purposes. As an asset ages, the taxes that the Company collected but did not pay to the governments are eventually paid so that the net result, over time, is the consumer pays the tax owed by the utility.

When the federal government reduced taxes from 35% to 21% this past year, EDITs were created on Duke's books. As a result, in the current case, the EDIT funds need to be returned to their rightful owners – the South Carolina consumer.

Q. HOW IS THE FLOWBACK OF EDIT TO CONSUMERS AFFECTING THIS RATE CASE?

A. The rate increases sought by DEC in this rate case are significantly lower when the return of customer money, as represented by the EDIT, is considered. Table 1 below shows the impact of the EDIT has on the Duke requested rate hikes in this case.

Table 1: EDIT Impact on Requested DEC Rate Increases

Customer Class	Rate Increase W/O EDIT	Rate Increase With EDIT/EE/DERP
Residential	17.5%	12.1%
OPT-G (primarily commercial)	15.5%	10.5%
OPT-I (primarily industrial)	12.0%	8.0%

Source: Pirro Direct Exhibit No. 2, page 1 of 1

1. Energy Costs for Manufacturers Located in DEC Service Territory

Q. PLEASE EXPLAIN THE IMPORTANCE OF ENERGY COSTS TO LARGE MANUFACTURING OPERATIONS.

A. Manufacturers are in a constant battle to compete. The competition is international, domestic, and amongst sister plants of the same manufacturer. If the cost to manufacture a particular product is less expensive in another state or country, the manufacturer has a duty to its customers and stockholders to move the manufacturing to the area of least cost. Sometimes the movements result in permanent plant shutdowns and mass layoffs. Other times, the movements result in line reductions such that the current plant temporarily ceases operation. The risk of unnecessarily high electric costs to manufacturers is that it may cause temporary or permanent plant closure.

An example of a temporary shutdown is a SC plant that produces an identical product as, for example, a sister plant in Georgia. Manufacturers planning their daily production schedules can look at SC prices on a day ahead hourly basis and

compare those prices to the Georgia hourly prices. If RTP prices are too high in SC, the plants don't operate.

In many circumstances, the SC hourly electric prices are higher than the Georgia prices and the SC plant does not operate a certain line on those days. In such a case, the SC utility loses a potential sale, but the loss is not reported in the press such as the reporting of a permanent plant closing. However, over time, the daily losses of load add up and jobs are eventually lost.

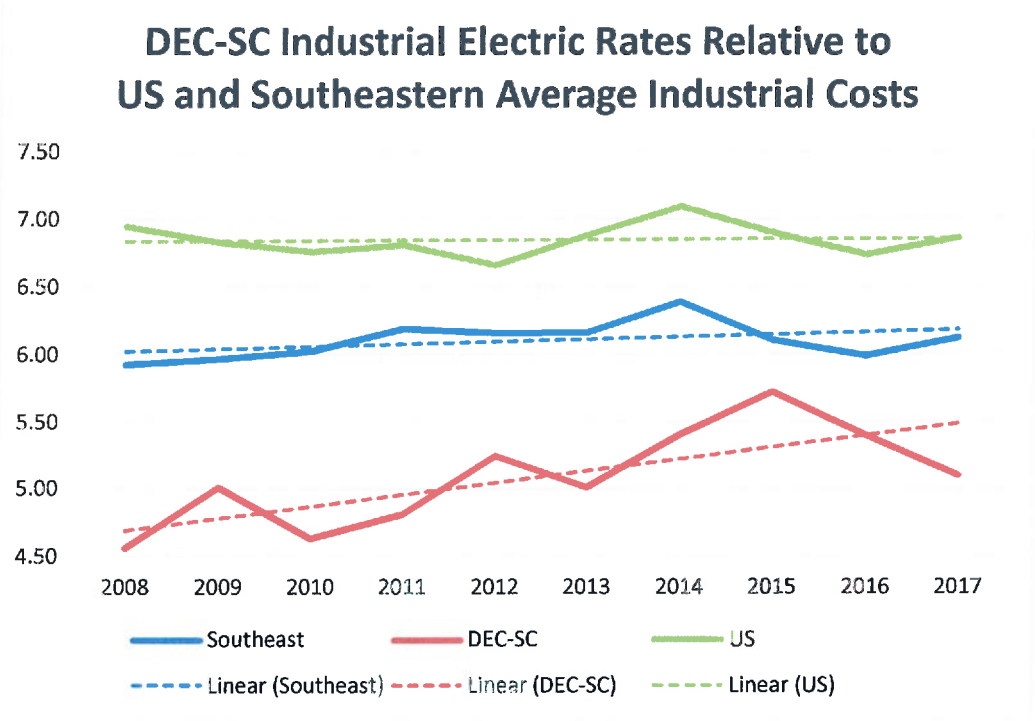
Q. ARE YOU SAYING THAT ELECTRIC COSTS ARE THE ONLY REASON MANUFACTURERS CHOOSE TO LOCATE/OPERATE IN A PARTICULAR STATE?

A. No. Manufacturers locate and operate in certain areas for a myriad of different reasons. The cost of electricity is one concern for manufacturers, but that concern is magnified the greater the state being examined is out-of-line relative to competing states. Energy intensive industries such as steel, air products, auto manufacturers, and paper companies are particularly sensitive to cost imbalances in the electric industry.

Q. HOW HAVE THE DEC SOUTH CAROLINA AVERAGE INDUSTRIAL COSTS COMPARED TO INDUSTRIAL COSTS IN OTHER SOUTEHASTERN STATES?

A. Chart 1 below shows DEC South Carolina average industrial costs relative to average industrial costs in North Carolina, South Carolina, Alabama, and Georgia. While DEC's average industrial costs are below other southeastern states, the trend is ominous. DEC South Carolina's rates are increasing relative to costs in other southeastern states.

Chart 1: Disappearing Competitive Advantage of SC Electric Industrial Rates



Source for raw data: US Energy Information Administration

Q WHY SHOULD THIS COMMISSION BE CONCERNED ABOUT DEC SOUTH CAROLINA ELECTRIC COSTS RELATIVE TO THE NATIONAL AVERAGE?

A. Historically, states in the southeastern United States have held a competitive advantage over other states across the country. The above chart shows that DEC South Carolina is quickly losing this competitive advantage. Such a situation does not bode well for the long-term prognosis of the state's manufacturing industry that depends on reliable and reasonably priced electric power. Given Duke management's very outspoken decision to drive earnings through massive grid investments, the South Carolina Public Service Commission is the best hope that Duke's consumers have to maintain their livelihoods in the State of South Carolina.

Q. WHY IS DEC SOUTH CAROLINA LOSING ITS ENERGY COST ADVANTAGE RELATIVE TO THE NATIONAL AVERAGE?

A. South Carolina operates a monopoly utility system in which customers have no choice but to buy power supplies from the utility that owns the franchise rights to serve them. As a result, the real customers of the electric utilities that operate in South Carolina are the state regulators and not the bill paying customers. Consequently, the dynamic that exists in regulation is totally divorced from the market forces and competition.

Q. IS ANY PART OF THE SOUTH CAROLINA ELECTRIC MARKET CURRENTLY DEREGULATED?

A. Yes. Wholesale (sales for resale) electric sales were deregulated through the Energy Policy Act (EPACT) of 1978. Since that time, wholesale competition has existed in some form in South Carolina. The competition has not been vibrant, but recent activities has shown that it is picking up in the state. As an example, NTE Energy recently opened a plant in Kings Mountain, South Carolina that serves many municipal electric systems in both South Carolina and North Carolina. NTE also is currently building another generating plant in Reidsville, NC and has plans to build a very large 1,000 MW plant in Anderson County, SC.

Southern Power, a division of the Southern Company, also owns several unregulated generating facilities located throughout the southeast. Southern serves a very large electric cooperative located in Duke's service territory in North Carolina.

Q. DO CUSTOMERS IN DEREGULATED WHOLESALE POWER MARKETS ALWAYS PLACE PRICE AT THE TOP OF THE LIST WHEN DECIDING UPON A NEW POWER SUPPLY ARRANGEMENT?

A. No. I have completed approximately 30 wholesale power transactions on behalf of clients in South Carolina and North Carolina. While price is, without a doubt, incredibly important, price certainty, credit quality, being comfortable with company representatives, and assistance with economic development all play important roles in choosing a power supplier in an open market.

One inherent disadvantage incumbent utilities have in competing in the open wholesale markets is the regulatory business model incentivizes utilities to build plant, such as generation, distribution, and transmission plant, as a means to drive earnings. Competitive suppliers, on the other hand, maximize profits by running lean operations and controlling their costs.

The best way to sum up my work in both the deregulated wholesale power markets and the regulated retail markets is that, in the wholesale markets, I get to CUT rates for my clients. In the regulated retail markets, I can only work to hold down the monopoly utility requested rate increases.

Q. ARE YOU RECOMMENDING THIS COMMISSION MOVE TO DEREGULATE THE ELECTRIC UTILITY INDUSTRY IN SOUTH CAROLINA?

A. No. I realize the current proceeding is not a referendum on deregulation. However, as noted in Chart 1 above, DEC South Carolina is losing its competitive advantage in terms of energy costs. Under the current regulatory model, Duke is not incentivized to lower costs. It is, instead, incentivized to grow earnings by investing in large amounts of plant and equipment and raising rates to consumers to pay for the plant and an associated return. It is the same monopoly model that incentivizes utility plant investment that led to the VC Summer nuclear fiasco with which this Commission recently dealt.

Table 1 above shows DEC's rate hike equates to 17.5% for a residential consumer, 15.5% for OPT-G (primarily commercial) consumers, and 12.0% for OPT-I (primarily industrial) consumers. This rate hikes are hard for individuals and manufacturers to absorb. Unfortunately, as rates rise to accommodate DEC's growth plans, the electric cost advantage in South Carolina will erode and, eventually, become a serious liability to the State.

Duke's requested rate increase contributes to its already low customer satisfaction.

Q. PLEASE EXPLAIN DUKE'S POOR CUSTOMER SATISFACTION RANKINGS AMONGST ITS BUSINESS CUSTOMERS.

A. On Dec. 17, 2018, the *Charlotte Business Journal* published an article entitled "Duke Energy fails to shine JD Power survey of business customer satisfaction". The first sentence of the article states:

> Duke Energy Corp.'s Southern (sic) utilities held three of that region's bottom five places in the rankings for business customer satisfaction among electric utilities, the latest survey from J.D. Power shows.

Duke's request for substantial rate hikes for both its South Carolina utilities will do nothing to assuage business customers, particularly in light of the Company's ongoing operational issues at least resulting fines from two different federal government entities involving areas for which DEC is seeking rate increases in this case.

2. Duke's Planned Grid "Updates"

Q. PLEASE EXPLAIN DEC'S GRID MODERNIZATION REQUEST IN THE CURRENT CASE?

A. Duke has made a very public announcement that it intends to "invest" $13 billion to "modernize" the electric infrastructure in the Carolinas over a period of 10 years. The current application in which it requests an expenditure of $301 million is just the tip of the iceberg for Duke.

Duke's grid "modernization" request includes efforts such as "updating grid technology including monitoring and communication equipment; installing protective devices to limit access to critical systems and minimize outages from

physical or cyber-attack; and relocating, raising or reinforcing equipment in flood-prone areas." [1]

Q. HAS DUKE PREVIOUSLY SUBMITTED REQUESTS FOR GRID MODERNIZATION EFFORTS TO THE SOUTH CAORLINA STATE REGULATORS?

A. No, but the Company has attempted to win legislation in North Carolina for a rate rider for grid updates and the utility also proposed an identical rate rider in its 2018 rate case before the North Carolina Utilities Commission (NCUC). Duke's grid investment requests at both the North Carolina Legislature and the NCUC were rejected.

Q. WHAT IS THE DIFFERENCE IN DUKE'S REQUEST IN THIS CASE VERSUS ITS PREVIOUS REQUESTS IN NORTH CAROLINA?

A. In essence, nothing. The Company is still seeking a pre-approval (similar to that of the Base Load Review Act) method of compensation. Based on recent media reports, it is clear that Duke still anticipates spending $13 billion in grid investments in the Carolinas. On January 22, 2019, the Charlotte Business Journal published an article that stated, in part:

> Duke says the overall scale of the $13 billion, 10-year program is still "directionally correct." [2]

In Duke's Q4 earnings call with analysts, Duke CEO Lynn Good admitted that Duke was going to push its earnings driver regardless of the forum. Below is part of the transcript from the Q4 earnings call that took place on February 14, 2019:

[1] Prefiled direct testimony of Kodwho Ghartey-Tagoe, p. 21, l. 9-12

[2] Charlotte Business Journal, Jan., 22, 2019

> **Shar Pourreza** -- *Guggenheim Securities LLC -- Analyst*
>
> Okay, so that's in there. Okay and then Lynn I know you're working through a legislation around sort of grid mod and how to sort of think about potentially getting a rider mechanism, but assuming legislation doesn't sort of time the well (sic) the way you're anticipating, you guys are going to be in for serial filings on an annual basis. So, how should we sort of think about the spending of that profile, assuming that you don't get legislation, maybe the commission approves trackers, but if you don't and you're going to be in rate cases, do you see sort of -- any sort of downside to that grid mod spend?
>
> **Lynn J. Good** -- *Chairman, President and Chief Executive Officer*
> You know, Shar, I think the capital we've put in front of you is capital that we would spend under the rate case scenario as well. So, we have contemplated both scenarios in our long-term guidance. So I don't see a lot of downside to grid spend as a result of what you're describing. (underline added) [3]

Here, DEC is seeking authority to raise rates in three-year forward-looking increments. At the end of the day, the Company is still seeking massive rate hikes over 10 years. Company executives simply re-packaged the North Carolina "Power Forward" proposal and put a different bow on it.

$13 billion is a huge amount of money for Duke consumers in the Carolinas to absorb. Executives are so focused on driving earnings through grid investments that they are not focusing on how these cost increases will negatively impact the South Carolina economy.

The Company proposal for forward-looking three-year rate increases for grid updates is a Trojan horse. The Company wants the Commission to believe that it has learned its lesson from its failures in North Carolina for a grid rider and that it has scaled back its grid investment plans that would hike rates over 50% to

[3] https://www.duke-energy.com/_/media/pdfs/our-company/investors/news-and-events/2018/4qresults/4q-18-edited-transcript.pdf?la=en

consumers. Consumers are very wary of Duke's real intention in this process and regulators should be concerned as well.

Q. ARE YOU SAYING THAT NO GRID INVESTMENT IS NEEDED?

A. No. I realize that some investment in the grid is warranted. However, the amount that Duke is requesting across the Carolinas is huge and the associated rate hikes are simply job killers. In addition, while the public, in general, supports some form of grid investment, Duke's own internal polling shows that customers do not support the massive rate hikes Duke has in its plans. [4]

Q. WHAT RATE HIKES ASSOCIATED WITH GRID INVESTMENT DOES DEC ANTICIPATE?

A. The rate hikes requested by Duke in the current proceeding are just the start of very large rate hikes anticipated by Duke in the future. DEC acknowledges the impact of its rate increases through 2023. [5] Table 2 below provides the individual rate hikes as proposed by DEC in this case and the cumulative rate increases over time.

Table 2: DEC Proposed Rate Hikes for Grid Investments

	Residential		OPT-G		OPT-I	
Year	Yearly Increase	Cumulative Increase	Yearly Increase	Cumulative Increase	Yearly Increase	Cumulative Increase
2018	0.91%	0.91%	0.24%	0.24%	0.23%	0.23%
2019	1.47%	2.39%	0.44%	0.68%	0.43%	0.66%
2020	1.82%	4.26%	0.56%	1.24%	0.55%	1.21%
2021	1.83%	6.16%	0.62%	1.87%	0.62%	1.84%
2022	1.85%	8.13%	0.67%	2.56%	0.66%	2.51%
2023	2.45%	10.78%	0.84%	3.42%	0.83%	3.37%

Source: DEC response to SCEUC ROG 2 – Rate Impacts

[4] DEC Response to SCEUC RTP 1-4 Electric Grid Assessment, Final Report, July 6, 2015.

[5] DEC response to SCEUC ROG 2 – Rate Impacts

As can be seen above, DEC is proposing to layer significant rate hikes on South Carolina consumers should the Commission allows the grid investments to occur. The above-stated rate hikes are in addition to the baseload generation rate increases sought in this case.

In addition, it is important to note how the grid investment rate increases accumulate over time. These increases start out at less than 1%, but they quickly grow such that, for residential consumers, the cumulative rate increase is almost 11% by 2023.

The cumulative impact on ratepayers of these rate increases is similar to that of the revised rates under the BLRA for SCE&G.

Q. DO YOU HAVE AN ESTIMATE OF THE RATE INCREASES THE COMPANY MAY, ULTIMATELY, ASK THE SOUTH CAROLINA CONSUMERS TO PAY FOR ITS GRID INVESTMENTS?

A. Yes, however, the rate impact on DEC's customers may be greater than DEC admits. DEC has represented to the NC Legislature that the utility anticipates that grid mod costs to be much higher. On Feb. 10, 2017, Ms. Kendal Bowman of Duke Energy made a presentation to the North Carolina Legislative Working Group and provided the **annual** rate increases expected by Duke over the next 10 years to pay for its proposed "investment" in grid modernization. Table 3 below provides these annual rate hikes as stated by Ms. Bowman on Feb. 10, 2017:

Table 3: Duke Energy Rate Increases for Grid Modernization

Customer Class	Utility	
	DEC	DEP
Residential	4.31%	4.05%

Commercial	1.18%	3.45%
Industrial	2.65%	0.86%

Source: Ms. Kendal Bowman at NC Leg. Working Group on Feb. 10, 2017

The above-stated rate hikes were North Carolina-specific, but there is no reason to doubt that the rate hikes Duke proposes in North Carolina will be substantively different from its plans in South Carolina.

Furthermore, as set out from the *Charlotte Business Journal* article of January 22, 2018, these anticipated Duke rate hikes are "directionally correct." In other words, the Duke rate hikes are going to be substantial and painful for Duke consumers and hard on the SC economy.

Q. CAN YOU PUT THE RATE INCREASES FROM TABLE 3 INTO BETTER PERSPECTIVE IN TERMS OF THE ACTUAL COSTS TO SOUTH CAROLINA CONSUMERS?

A. Yes, the above-stated rate impacts are best put into context by translating these annual rate hikes into a cumulative rate increase over 10 years. Table 4 below provides the cumulative rate hike percentages expected to be requested by Duke for the grid updates.

Table 4: Cumulative Rate Increase for Duke's Proposed Grid Investments

Customer Class	Utility	
	DEC	DEP
Residential	52.50%	48.74%
Commercial	12.45%	40.38%

Industrial	29.89%	8.94%

P. 12 of Duke presentation of 2-10-17
calls for 10-year grid program

The above percentage rate change increases can be further granulated into annual cost increases for Duke customers over the life of Duke's proposed 10-year roll-out of its grid update plans. Table 5 below provides the cumulative cost increases associated strictly with Duke's grid updates.

Table 5: Per Customer Cost for Duke Grid Updates

$13 Billion Spend		
Customer Class	Utility	
	DEC	DEP
Residential	$3,777	$3,726
Commercial	$174,982	$613,056
Industrial	$11,993,265	$4,194,747

For residential consumers, the above table assumes a consumption of 1,100 kWhs per month using the average DEC residential cost in South Carolina as reported by the EIA. For commercial consumers, the table was constructed using a 500 kW load with a 70% load factor and a corresponding EIA average cost. Lastly, the industrial values were calculated using a 20 MW load, an 85% load factor, and cost data as reported by EIA.

The above-stated cost increases are massive. Residential consumers are looking at cost increases of close to $4,000. Commercial consumers are looking at cost increases over $175,000. Industrial consumers are faced with cost increases of close to $12 million. For industrial consumers, a $12 million cost increase over 10 years represents a single year payroll for 150 persons earning an average of

$80,000 per year. There is no doubt, the cost impact on the South Carolina economy will be incredibly hard and painful.

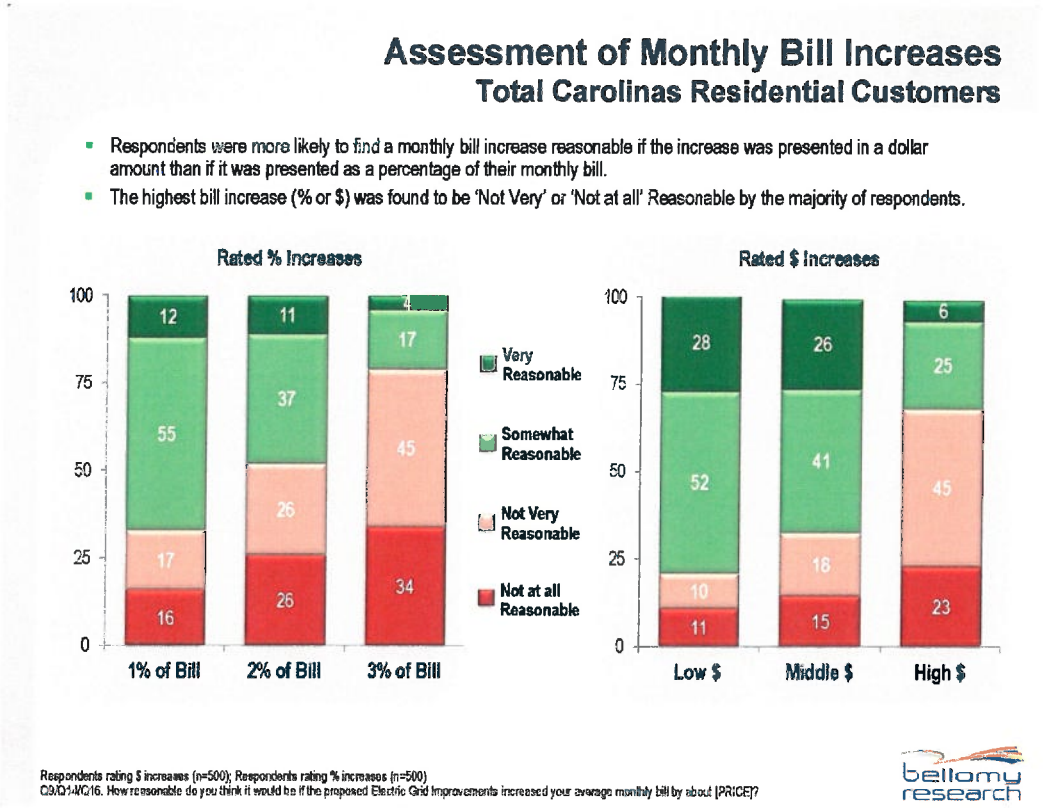
Q. HAS DUKE COMPLETED ANY MARKETING SURVEYS TO ASSESS CUSTOMER INTEREST IN GRID MODERNIZATION?

A. Yes. Duke performed a customer survey on its grid investment plans and knew, way back in 2015, that customers were opposed to the massive rate hikes proposed to pay for its grid investments.

On July 6, 2015, Bellomy Research presented the findings of its marketing survey regarding Duke's "Electric Grid Improvements."[6] While most individuals indicated they were in favor of an improved grid, the data below shows consumers have their limit. Specifically, the data below shows that 79% polled found Duke's grid improvements were "not very reasonable" or "not at all reasonable" when the cost increase was 3% per month (see Chart 2).

[6] DEC Response to SCEUC RTP1-4 Electric Grid Assessment, Final Report, 7-6-15

Chart 2: Duke Customer Survey



If 79% of respondents feel that 3% is too much to pay for the grid updates, common sense dictates an overwhelming percentage of consumers would be opposed to a 10.7% rate hike from Duke as noted in Table 2 above or, even worse, the 52.5% rate hike as calculated by the material presented by Ms. Bowman before the North Carolina General Assembly.

Q. DO YOU HAVE ANY WAY TO MEASURE WHAT CONSUMERS MAY RECEIVE AS PART OF DUKE'S PLANNED GRID INVESTMENTS?

A. Yes. According to the testimony of Witness Jay Oliver, DECs System Average Interruption Duration Index (SAIDI) was 190 at the end of 2017. [7] According to testimony from the DEC case in North Carolina, the goal of Duke's grid

[7] Figure 2 of Prefiled Testimony of Jay Oliver, page 22

investment plan is to reduce outages times 40% to 60%. 8 If DEC is successful in reaching this goal, the Company would reduce its outage times from 190 to approximately 95, meaning that consumers would get an extra 1 hour and 35 minutes of power for Duke's grid investments.

Q. HAS DUKE PUBLICLY ANNOUNCED THE RATE HIKES IT ANTICIPATES FROM ITS PROPOSED GRID INVESTMENTS?

A. Below is interrogatory and DEC's response to the interrogatory on this issue:

> **Request**:
>
> 1-6 Please set out and describe any and all communications to both North Carolina and South Carolina consumers in regard to grid modernization rate impacts presented by Duke Energy in any public setting.
>
> **Response**:
>
> In North Carolina, Duke Energy Carolinas presented testimony that contained revenue requirements for the proposed Power/Forward Carolinas grid modernization plan in Docket E-7, Sub 1146 in the attached direct, pre-filed testimony of witness McManeus.
>
> In South Carolina, witnesses Bateman and Smith provide estimated revenue requirements for the DEC and DEP's proposed Grid Improvement Plans in their respective direct, pre-filed testimony in this matter, however the estimated rate impacts to the various customer class was not included.

I chose to provide the Commission the above-stated request and response as it shows the Company has no intention of providing the general public the true cost of its grid investment plans.

[8] Testimony of Caroline Golin before the North Carolina Utilities Commission in Docket NO. E-7, Sub 1146, page 13

With 79% of survey respondents opposing a 3% rate hike, and Duke is proposing hikes as much as 50%, there is little wonder why Duke has been silent on the massive costs associated with its grid investments.

The real question Duke should have asked consumers in its customer survey was whether the typical residential customer is willing to pay upwards of $4,000 to achieve 1 hour and 35 minutes more of power each year. I am confident the answer to that question would be a resounding no.

Q. DOES DUKE CURRENTLY RECOVER THE COST FOR MAINTAINING AND IMPROVING RELIABILITY?

A. Yes, Duke currently collects in its rates charges to support the maintenance of the bulk electric system. Unfortunately, it appears that consumers are not getting a good bargain on the grid investments for which we are already paying Duke. On February 1, 2019, *The Wall Street Journal* reported that Duke was recently fined $10 million by the North American Electric Reliability Council (NERC) for safety and reliability violations. The article was entitled "Duke Energy Broke Rules Designed to Keep Electric Grid Safe." The first two sentences of the article state as follows:

> Duke Energy Corp. DUK +0.52% faces a record $10 million fine from federal authorities for serious and pervasive violations of rules designed to keep the nation's electric system safe from physical and cyber attacks, according to people familiar with the matter.
>
> Some violations lasted for years; others apparently are continuing, according to the people and newly released documents in a federal regulatory filing.

The article goes on to state:

> It (Duke) committed 127 violations of safety rules, federal investigators said, which "posed a serious risk to the security and reliability" of the eastern interconnection, the web of electric

> utilities east of the Rocky Mountains that furnishes electricity to most Americans.

In regard to foreign entities possibly infiltrating the Duke system, the *Wall Street Journal* states:

> The revelation of the extensive cybersecurity breakdown at a major utility comes as federal authorities are increasingly vocal about efforts by foreign actors, including those in Russia, to hack into U.S. utilities.

It is clear from the news as reported by *The Wall Street Journal*, Duke has not been a good steward of customer revenues paid it for grid reliability. Allowing Duke multiple rate hikes totaling $13 billion in the Carolinas and then hoping it can correct its mismanagement is simply a poor investment. **Duke should be made to prudently operate the system it has before asking consumers for even more money.**

Q. PLEASE EXPLAIN DUKE'S REQUEST IN THIS RATE CASE FOR COST RECOVERY OF ITS PROPOSED GRID INVESTMENTS.

A. In its application of this case, Duke is seeking a pre-approval plan for its grid investments. Duke's grid plan is, for all practical purposes, the Base Load Review Act (BLRA) as applied to distribution and transmission investment. This Commission knows full well the economic impact that rate hikes and associated economic fallout have had on citizens in the State of South Carolina.

Q. DO YOU HAVE ANY EVIDENCE TO SUPPORT YOUR BELIEF THAT DUKE'S OBJECTIVE WITH ITS GRID INVESTMENT PLAN IS TO DRIVE EARNINGS?

A. Yes. The business model for any electric utility is that it has two ways of making money in the future. First, the utility can remain as a pure monopoly and drive earnings through capital investment to be paid by captive ratepayers. Secondly, the utility can venture into unregulated activities and take the same risks as do all

other companies. Duke has made a concerted effort to remove itself from virtually all aspects of unregulated activities as evidenced by the sale of its international businesses in 2016 and its unregulated Midwest generation business in 2014. Duke further entrenched its operations as a pure territorial monopoly business when it purchased Piedmont Natural Gas with its existing territorial monopoly operations in the Carolinas. By making these moves, Duke has chosen to be a monopoly utility as opposed to trying to survive in competitive markets.

By moving more towards becoming a pure territorial monopoly business, Duke executives realize their best way to drive their earnings is to ask for continuous rate hikes from captive South Carolina consumers to pay for plant investments. Evidence for this statement can be seen in the June 15, 2017 edition of the S&P Global Market Intelligence Financial Focus report on Duke Energy which states (in part):

> With unmatched scale and the largest capital expenditure program in the industry, Duke Energy might be considered the leading infrastructure investment in the country at an opportune time, politically speaking. Following the exit from its Brazilian and remaining Latin American operations last year, and its acquisition of Piedmont Natural Gas, Duke has transitioned to a pure domestic infrastructure business. To recapture its earnings growth of years past and allow higher capital deployment, however, timely rate case execution is paramount. [9]

This same report goes on to state the following:

> Additionally, Duke is working to advance legislation in the Carolinas — its primary service territory — that would improve regulatory cost recovery mechanisms and reduce regulatory lag, and could be an important earnings growth driver in years ahead.[10]

9 S&P Global Market Intelligence Financial Focus, June 15, 2017

10 id

This last statement reflects Duke's failed attempt to obtain GRR legislation in the 2017 long session in North Carolina that would have required North Carolina consumers to pay upfront for Duke's grid expansion.

The same S&P report cited above goes on to state:

> Over the next five years, Duke plans to spend $37 billion across its business platform **to drive robust consolidated adjusted earnings growth of 4%-6% annually**. (underline and bold added) [11]

Duke CEO Lynn Good further admitted the goal to drive earnings by stating the following to the Barclays CEO Energy-Power Conference in New York

> It is also important that we pursue regulatory and legislative initiatives that underpin our ability to deliver returns and turn those investments into cash and returns to shareholders[12] (underline added)

Q. DOES DUKE HAVE THE RESOURCES TO PURSUE A LEGISLATIVE INITIATIVES AS SUGGESTED BY MS. GOOD?

A. Yes. See Table 6 below.

Table 6: Political Contributions of Duke Energy

Organization	Invoice Amount	Amt Alloc to DEC	Purpose
South Carolina Chamber of Commerce	$ 31,000	$ 4,712	Membership dues (lobbying portion)
South Carolina Manufacturers Alliance	$ 20,000	$ 5,400	Membership dues (lobbying portion)
SC Business & Ind Political Education Com	$ 10,000	$ 7,500	2016 Membership dues
SC House Democratic Caucus	$ 5,000	$ 3,800	2016 Membership dues
SC House Democratic Caucus	$ 5,000	$ 3,800	2016 Contribution
SC House Republican Caucus	$ 5,000	$ 3,800	Business roundtable membership dues

11 id

12 *Charlotte Business Journal*, Sept. 7, 2017, 1

SC House Republican Caucus	$ 5,000	$ 3,800	Sponsorship of 2016 Legislative Classic
South Carolina Senate Democratic Caucus	$ 5,000	$ 3,800	2016 Senate Democratic Caucus member prog
South Carolina Senate Democratic Caucus	$ 5,000	$ 3,800	Sponsorship
South Carolina Republican Caucus	$ 5,000	$ 3,800	2016 Membership dues
South Carolina Republican Caucus	$ 5,000	$ 3,800	Sponsorship
Blue Ridge Electric Cooperative	$ 4,500	$ 3,420	Dinner sponsorship
SC Legislative Black Caucus	$ 3,500	$ 2,660	Corporate Roundtable 2016 membership
The Riley Institute - Furman University	$ 2,500	$ 1,900	Legislative & civic awards dinner
South Carolina Manufacturers Alliance	$ 2,000	$ 1,520	Heritage Legislative Event
South Carolina Manufacturers Alliance	$ 1,942	$ 1,476	Heritage Legislative Reception
American Legislative Exchange Council	$ 1,500	$ 1,140	ALEC Scholarship Fund
Capital Commission	$ 1,500	$ 1,140	Legislative Golf sponsorship
Collins Home & Family Ministries	$ 1,500	$ 1,500	Golf Tournament sponsorship
Total South Carolina Political Donations	$119,942	$ 62,768	

Source: North Carolina Utilities Commission Docket No. M-100 Sub 150, filing of NC WARN, 2-8-19

Certainly, if DEC can persuade the General Assembly to pass grid legislation, it should do so. Until then, however, the Commission should deny Duke's request.

Q. IS THE DECISION BY DUKE MANAGEMENT TO FOCUS ON GRID EXPANSION UNIQUE TO DUKE OR IS IT AN INDUSTRY TREND?

A. Grid "modernization" efforts are an industry trend. Electric utility load growth is much flatter than in recent years and this lack of sales has caused utilities across the country to search for new ways to drive earnings. On Nov. 8, 2017, Bloomberg published an article entitled "No Sales Growth? No Problem! Utilities See Money in Grid Repairs." The article succinctly captures the grid "modernization" efforts in the following statement:

> Utilities make money by investing in wires, poles, substations and power plants and getting a guaranteed return by their regulators on those investments. But as demand for electricity has flat-lined for nearly a decade, companies are finding it harder to justify just building more stuff for growth. So now, they're talking about

> making the grids they do operate more efficient and flexible, which also happens to cost money. [13]

So, in essence, Duke management has realized that, to continue to grow earnings, it has to stop focusing on building new generation plant and, instead, build something else. In this case, the "something else" is grid "modernization" plant. The core questions for this Commission is whether Duke's massive grid efforts are needed and if so, are they cost beneficial and prudent expenditures for South Carolina consumers.

Manufacturers, in particular, stand to be hurt by these Duke grid updates as they will simply be forced to absorb these massive rate increases.

Q. DO YOU BELIEVE DUKE'S PROPOSED GRID INVESTMENTS WILL "STIMULATE ECONOMIC GROWTH" AS CLAIMED BY DUKE IN ITS APRIL 12, 2017 PRESS RELEASE TOUTING ITS GRID INVESTMENT PLANS?

A. No. When Duke makes statements about "investments" in South Carolina, it is important to note that Duke expects to recover those investments from captive consumers in the State and to earn a handsome return on those same investments. Duke's discussion about economic growth from grid investments is a one-sided story because Duke fails to mention the economic harm due to the high cost of Duke's unnecessarily high grid updates.

This Commission need only look to the situation at the VC Summer Nuclear plant and the BLRA to see an example of the perils of accepting utility promises of economic growth via large plant investments.

[13] Bloomberg, Nov. 8, 2017, "No Sales Growth? No Problem! Utilities See Money in Grid Repairs"

Perhaps DEC management is hoping state legislators and this Commission have a short memory as to the Summer fiasco.

Q. IS DUKE WILLING TO GUARANTEE CONSUMERS WILL REALIZE A REDUCTION IN OUTAGES FROM ITS REQUESTED GRID INVESTMENT STRATEGY?

A. No. In a data request, SCEUC asked if DEC could provide any guarantee that its grid investment plans would reduce outages. Duke refused to guarantee its grid investments will reduce outages. [14]

Duke's unwillingness to offer any assurances for improved grid reliability is like an auto manufacturer asking you to buy an expensive new car without any warranty.

Q. IS RELIABILITY IMPORTANT?

A. Absolutely. When a power outage occurs, manufacturers typically go off-line and lose product. Even a short outage can result in tens of thousands or hundreds of thousands of dollars in product losses. However, there is a limit to the level of higher rates manufacturers can support to offset POTENTIAL reductions in outages. The cost increases found in Table 5 above show a 20 MW customer would see an increase of $12.0 million to pay for Duke's planned grid investments. Such a cost increase would damage the competitiveness of SC manufacturers, thereby putting many South Carolina jobs at risk.

Q. HOW ARE OTHER STATES HANDLING GRID "MODERNIZATION" INVESTMENT EXPENSES?

A. The North Carolina Clean Energy Technology Center (NCCETC), which is housed at North Carolina State University, publishes a quarterly report entitled "The 50 States of Grid Modernization." In my review of grid expense reports

[14] DEC response to SCEUC ROG Set 1-4

from across the country, this NCCETC report is the most up-to-date and complete authoritative report on grid actions around the country.

The NCCET publication states the following in regard to studies and investigations ongoing around the country in regard to grid investments.

> STUDIES AND INVESTIGATIONS
> **Key Takeaways:**
> □ In Q3 2018, 27 states plus DC took action to study or investigate issues related to grid modernization, energy storage, utility business models, and rate reform.
> □ Two states – Ohio and Oregon – completed grid modernization studies during Q3 2018,while draft reports were released in Illinois and Louisiana.
> □ Most studies are emphasizing stakeholder engagement, policy recommendations, and the development of next steps.
>
> Many of the states addressing grid modernization are citing a need for greater information to inform the legislative and regulatory processes. Many states do not yet have significant experience with grid modernizing technologies, and in some cases, these technological advancements are prompting an examination of the state's overall vision for the electric grid and an analysis of potential policy mechanism to achieve that vision. State have proposed a broad range of studies and investigations of both the technology and policy side of grid modernization depending on their specific need. [15]

The NCCETC's "The 50 States of Grid Modernization", Q3 2018 than goes on to provide individual details of state actions regarding grid investments.

Q. DID YOU FIND ANY COMMON THEMES AMONGST THE VARIOUS STATE EFFORTS?

A. Yes. The one overriding theme I found in my analysis of various state actions is that of transparency and public involvement.

[15] The 50 States of Grid Modernization: Q3 2018 Quarterly Report, p. 18

Q. DO YOU HAVE A RECOMMENDATION TO THIS COMMISSION IN REGARD TO DUKE'S PLANNED TRANSMISSION AND DISTRIBUTION INVESTMENT PLANS?

A. Yes. As has been done in numerous other states, I recommend the Commission open a separate public docket to investigate the need for Duke's proposed grid investments. Given the complex engineering nature of grid investments, I also recommend that a qualified independent engineering firm be retained by the Commission to assist it in reviewing all the technical details of Duke's grid plans.

In that docket, I suggest the Commission examine the following issues, among others, involving grid updates for DEC:

1. Is the Duke plan for grid investments needed for reliability purposes?
2. How many hours of reduction of outages can DEC customers receive with the implementation of its various grid investments?
3. How much will the outage improvement, assuming it occurs, cost consumers?
4. Is Duke's grid update plan cost-effective?
5. How are other states handling grid investment updates?
6. What are the lessons learned from other states?
7. How will the State's renewable energy industry be impacted by DEC's planned grid investments? and
8. How will the rate increases expected under Duke's plan affect the State's economy?

Issue 4 above is noteworthy. To be specific, Duke's grid modernization is going to cost residential consumers upwards of $4,000. How many hours of outage reductions will consumers receive for their $4,000? Are consumers willing to pay $4,000 for this extra outage reduction ON TOP of the amount they are already paying in current rates for O&M on the grid? Certainly, manufacturers would be unwilling to pay $12 million for little-to-no benefit.

Furthermore, the price of batteries continues to fall. A 5-kW Tesla Powerwall, for example, costs $8,000 installed.[16] It is illogical to spend $4,000 with Duke and still endure outages when the consumer could spend $8,000 and be assured of almost no interruptions (and Duke would not be charging a rate of return on the battery, since it would be owned by the customer).

Duke has had customer meetings to engage stakeholders in the grid investment process. However, the general public has not been involved in these meetings. As an example, there is no doubt the public is unaware that the Duke grid plan could increase costs by $4,000 and upwards of $12 million for a single manufacturer. As is done with public hearings before rate cases, I suggest Duke be required to have town hall meetings throughout its territory to discuss the benefits **AND COSTS** of its grid investment plan. If the rate increases in excess of 50% are "directionally correct", consumers need to know this information so they can plan accordingly.

Q. DID DUKE PRESENT A COST BENEFIT STUDY FOR ITS GRID INVESTMENTS IN THE CURRENT DOCKET?

A. Yes.

Q. DO YOU HAVE ANY CONCERNS ABOUT THE STUDY?

A. Yes. The cost benefit study was presented in the testimony of Company Witness Jay Oliver and consists of three pages (pages 37-39) of a written description and four exhibits. In his exhibits, Mr. Oliver cites three different grid update plans: the Integrated Volt/Var (IVVC) program; the Self-Healing Grid program; and the Transformer Grid program. Each of these programs has a different cost-to-benefit ratio but each of them also presents many unanswered questions.

[16] https://www.energysage.com/solar/solar-energy-storage/tesla-powerwall-home-battery/

For example, the IVVC program cites avoided variable O&M. Unfortunately, the details of what is avoided and the exact amounts of what is avoided is not found in the exhibits. Locational details are found in Mr. Oliver's exhibits, but there is not detail of exactly how DEC developed the associated costs or benefits. The 2018 Grid Improvement Plan as filed by Mr. Oliver in this case is full of a lot of charts, tables, and graphs but it is weak in providing the details necessary to dissect the details of the benefit-to-cost ratios as outlined in Mr. Oliver's testimony.

Based on the material presented by Mr. Oliver, Duke wants this Commission to grant it rate increases that may total as much as $12 million over 10 years to the typical manufacturer and upwards of $4,000 to the typical residential consumer. Duke's poorly presented cost/benefit study is one more reason the Commission should deny Duke's request and open a docket in this matter and retain an independent engineering firm to assist it with its analysis.

Q. HAS ANY OTHER ATLANTIC COAST STATE RECENTLY RULED ON A GRID INVESTMENT PLAN FOR ITS LOCAL UTILITIES?

A. Yes, On Jan. 27, 2019, the Virginia State Corporation Commission (VA SCC) ruled on the request of Dominion Virginia Power (DVP)on its proposed grid investment plan. The VA SCC ruled against the proposed DVP plan and, in part, stated the following:

> Dominion's proposed Plan is expensive, so it is important that Dominion's customers receive adequate benefit for the costs they will bear in their monthly bills. If the total Plan were approved, the cost to customers — the lifetime revenue requirement of these investments — will be approximately $6.0 billion, including financing costs, to be recovered from customers over the lives of the various components that range from five to 55 years.
>
> The Plan is large and multi-faceted and many elements are not necessarily related to others, so below we consider the Plan's elements in four major categories of related elements. These categories and the costs of each are as follows: (i) Cyber and Physical Security and

> Telecommunications (total costs: $910.3 million; Phase I costs: $154.5 million); (ii) Advanced Metering Infrastructure and related elements (total costs: $1.3 billion; Phase I costs: $696.8 million); (iii) Intelligent Grid Devices, Operations and Automated Control Systems, and Emerging Technology (total costs: $776.0 million; Phase I costs: $157.5 million); and (iv) Grid Hardening (total costs: $3.0 billion; Phase I costs: $486.1 million). After consideration of the entire record, we find that Dominion has proven that the costs of the elements in the Cyber and Physical Security category are reasonable and prudent and are approved, as well as some of the Telecommunications elements. We find that Dominion has not proven that the costs for the Plan elements in categories (ii), (iii), and (iv) are reasonable and prudent. These parts of the Plan are not approved. This disapproval is without prejudice and Dominion may re-file for approval of certain elements in a future proposed plan that complies with the requirements set forth below.[17]

The Virginia State Corporation Commission made the same determination that I am recommending in this case and that is, a THOROUGH AND DETAILED analysis of the DEC request in this case is warranted. Before South Carolina enacts broad and sweeping regulatory policy changes, a detailed analysis of the costs and benefits of the Duke proposal must be performed.

Duke executives have already promised strong earnings to stockholders from grid investments. These same executives have not yet persuaded citizens of South Carolina that such investments are warranted. Indeed, these executives have not even begun trying to persuade consumers to open their wallets for such massive rate increases. I urge the Commission to do its full due diligence in this case and completely and thoroughly examine the costs and benefits of grid updates as proposed by DEC in this case.

[17] Virginia State Corporation Commission Case No. PUR-2018-00100, pages 5-6

3. Coal Ash Costs

Q. MR. O'DONNELL, PLEASE EXPLAIN THE BACKGROUND THAT HAS LED DEC TO REQUEST RECOVERY OF $200 MILLION OF COAL ASH COSTS IN THIS CASE.

A. On February 2, 2014, DEC spilled a large amount of coal ash in the Dan River. This spill made the national press. The Dan River spill will be cleaned up with Duke stockholder funds. Information exposed in the Duke federal plea deal, which is described below, revealed that on two separate occasions, Duke engineers at the Dan River plant requested an immaterial amount of budget funding to pay for video equipment to scope the pipe that later failed. Duke engineers were denied the request. [18]

On September 2014, in response to the Dan River spill, the North Carolina Legislature passed the Coal Ash Management Act (CAMA) that required the closure of existing coal ash ponds as well as conversion from wet ash to dry ash handling. CAMA was the first such coal ash management law in the United States. This initial legislation required basins at four Duke plants to be closed by 2019.

On December 19, 2014, the EPA issued the Coal Combustion Residual (CCR) Order that provided minimum national criteria for CCR landfills, CCR surface impoundments, and lateral expansion of coal-fired units. The CCR federal rule was designated as "self-implementing," meaning that Duke was not under any requirement to act UNLESS it is sued by a state or other entity and loses that lawsuit.

On May 14, 2015, DEC, Duke Energy Progress, and Duke Energy Business Services pled guilty to nine violations of the Clean Water Act and was fined $102

[18] United States District Court for Eastern District of North Carolina, Case Nos. 5:15-CR-62-H, 5:15-CR-67-G, 5:15-CR-68-H, ordering paragraphs 69-80

million by the federal courts[19]. Below are some of the issues to which Duke admitted guilt:

- From at least January 1, 2012, Duke Energy Carolinas and Duke Energy Business services failed to properly maintain and inspect the two storm water pipes underneath the primary coal ash basis at the Dan River Steam Station in Eden, North Carolina. On February 2, 2014, one of those pipes failed, resulting in the discharge of approximately 27 million gallons of coal ash wastewater and between 30,000 and 39,000 tons of coal ash into the Dan River[20]
- Duke Energy Progress and Duke Energy Business Services also failed to maintain the riser structures in two of the coal ash basins at the Cape Fear Steam Electric Plant, resulting in the unauthorized discharges of leaking coal ash wastewater into the Cape Fear River.[21]
- Additionally, Duke Energy Carolinas and Duke Energy Progress's coal combustion facilities throughout North Carolina allowed unauthorized discharges of pollutants from coal ash basins via "seeps" into adjacent waters of the United States.[22]
- The Defendants' conduct violated the Federal Water Control Act (commonly referred to as the "Clean Water Act," or "CWA"). 33.U.S.C. 1251. [23]

[19] United States DE Ct. of Justice press release, May 14, 2015, 1

[20] United States District Court for Eastern District of North Carolina, Case Nos. 5:15-CR-62-H, 5:15-CR-67-G, 5:15-CR-68-H, 2

[21] Id at 3

[22] Id at 3

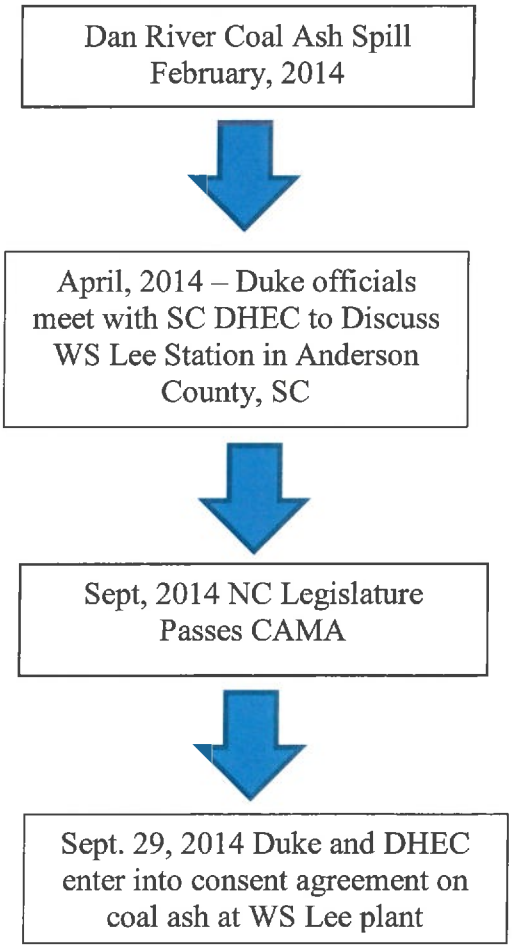
[23] Id at 4

Below is what an official with the United States Environmental Protection Agency said about Duke officials and coal ash:

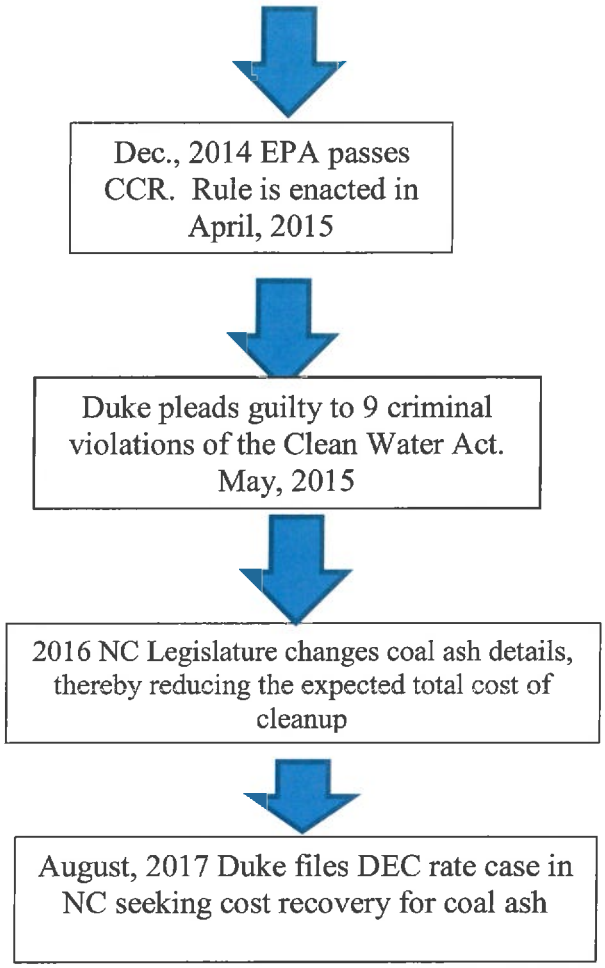
> "Duke management failed in their responsibility to the people of North Carolina. Their criminal negligence is what caused this disaster," said Cynthia Giles, assistant administrator for enforcement for the U.S. Environmental Protection Agency. [24]

Chart 3 below shows the milestone dates for the Duke coal ash situation from the spill at Dan River to the current rate case recovery request.

Chart 3: Duke Coal Ash Timeline



[24] http://www.wral.com/duke-energy-pleads-guilty-to-environmental-charges-linked-to-coal-ash-spill-leaks/14645414/)



Q. DOES DUKE BELIEVE IT IS ENTITLED TO 100% RECOVERY OF ALL COAL ASH EXPENSES?

A. Yes, with the exception of the Dan River spill clean-up costs and fines. Duke maintains that its coal ash expenses are being incurred as a normal course of its business operations and, as such, ratepayers should pay these costs entirely.

Q. CAN YOU PROVIDE ANY EVIDENCE THAT THE NORTH CAROLINA CAMA LEGISLATION WAS PROMPTED BY THE DAN RIVER SPILL?

A. Yes. Below is a portion of an article that cites two legislators in North Carolina that demonstrate CAMA was a direct result of the Dan River spill.

> According to one of Duke Energy's top leaders, North Carolina's 2014 coal ash legislation didn't necessarily result from a company ash spill in the Dan River.
>
> Federal coal ash rules were already being drafted at the time, and it's possible, Duke state President David Fountain testified Monday during a rate increase hearing, that the North Carolina General Assembly would have passed its law anyway.
>
> Twice, Sierra Club attorney Matthew Quinn asked Fountain whether the law was motivated, or partially motivated, by a spill that turned parts of the river gray.
>
> "I really can't admit that," Fountain replied.
>
> State Rep. Pricey Harrison, D-Guilford, who saw her push for coal ash regulations gain traction only after the spill, scoffed at this Monday evening. When the bill passed in 2014, Senate negotiator Tom Apodaca specifically said that, "When I saw the Dan River thing, I said, 'We've got to do something.'" State Rep. Chuck McGrady, R-Henderson, who negotiated the bill for the House, told the Associated Press that, "unfortunately, sometimes we wait until we have a really big problem before we address it."
>
> "It makes sense for (Fountain) to say that, but he is flat wrong," Harrison said Monday. [25]

Q. DO YOU AGREE WITH DUKE'S POSITION THAT CONSUMERS SHOULD PAY ALL THE COSTS OF CLEANUP?

A. No. Duke management made specific decisions that resulted in the coal ash spill in North Carolina that, in turn, led to the creation of the Coal Ash Management Act (CAMA). My analysis in North Carolina was that Duke stockholders should pay 75%, but I have a discovery response outstanding to Duke that may change my recommendation on this matter.

[25] http://www.wral.com/seeking-rate-increase-duke-energy-dodges-link-between-coal-ash-spill-and-coal-ash-bill/17145054/

Q. PLEASE EXPLAIN THE ACTIONS DUKE TOOK IN REGARD TO THE COAL ASH SITUATION AT THE WS LEE GENERATING STATION IN ANDERSON COUNTY, SC.

A. As noted in the timeline above, the Dan River spill occurred in February 2014. The cause of the spill was the collapse of a pipe under the coal ash pond that allowed coal ash to spill into the Dan River. On April 1, 2014, Duke officials met with the South Carolina Division of Health and Environmental Control (SC DHEC) to discuss actions it should take at the Lee plant's inactive coal ash basin under which was a 60-inch corrugated pipe that was similar to the pipe that failed at the Dan River plant. At the time of the Duke/DHEC meetings, the Lee plant's inactive coal ash basin was not subject to the EPAs CCR rule as the CCR applies only to active ash basins. Similarly, the North Carolina CAMA was pertinent to that state, meaning that the CAMA regulations could not cross the border into South Carolina.

It is important to understand that Duke was not, prior to the consent agreement with DHEC, obligated to remediate the WS Lee inactive coal ash pond. However, given that the construction of the Lee coal ash pond was similar to the Dan River coal ash pond that failed, Duke panicked and rushed to remediate the Lee coal ash pond.

Q. DID THE COMPANY PERFORM ANY ENGINEERING STUDIES IN ASSESSING THE SITUATION AT THE INACTIVE COAL ASH BASIN AT THE LEE PLANT?

A. Yes, the Company completed two engineering studies. One study was completed two weeks prior to the Duke/DHEC consent agreement whereas the other study was completed 9 months after the consent agreement was finalized.

Q. PLEASE EXPLAIN THE FINDINGS OF THE FIRST ENGINEERING STUDY.

A. Soils and Materials Engineers (S&ME) submitted a report to DEC on Sept. 12, 2014 in which it recommended the Company monitor the Lee plant embankments. S&ME did not recommend immediate excavation of the Lee plant inactive basin. [26]

Q. PLEASE EXPLAIN THE FINDINGS OF THE SECOND ENGINEERING STUDY.

A. On June 30, 2015 (9 months after the DHEC consent agreement), URS Corporation issued a report to Duke which state in its summary:

> Imminent Dam Safety Issues: No conditions were observed or identified by analyses completed under Phase 2 that represent a dam safety condition requiring immediate attention.[27]

Notwithstanding the fact that Duke's two engineering firms said that no immediate excavation was warranted, on Sept. 29, 2014, a full 7 months AFTER the Dan River spill, Duke and SC DHEC entered into a consent agreement in which the Company agreed to immediate excavation of the inactive coal ash basin and removal of the coal ash by Dec. 31, 2017.

Q. ARE YOU CONTENDING THAT THE INACTIVE COAL ASH BASIN AT THE LEE PLANT SHOULD NOT HAVE BEEN EXCAVATED?

A. Yes. Duke's engineers saw no need to excavate the coal ash basin. Accordingly, Duke's stockholders should be required to pay for the Lee coal ash remediation.

Q. DO YOU HAVE A SPECIFIC AMOUNT ASSOCIATED WITH YOUR RECOMMENDATION TO DISALLOW CLEAN UP COSTS ASSOCIATED WITH THE WS LEE INACTIVE BASIN?

[26] NCUC Docket NO. E-7, Sub 1146, Tr. Vol. 15, p. 118.

[27] NCUC Docket No. E-7, Sub 1146, Tr. Vol. 15, p. 143.

A. No. The cost of the remediation of the Lee inactive basin is confidential and, at the time of the filing of this testimony, has not yet been revealed to me in a discovery response by DEC. I reserve the right to submit supplemental testimony to provide the Commission with this disallowance amount.

Q. DID DEC CHANGE REMEDIATION EFFORTS AT ANY OTHER COAL PLANT SUBSEQUENT TO THE DAN RIVER SPILL?

A. Yes, On Jan. 22, 2014, Duke received a draft report from a contractor, AMEC Environmental & Infrastructure, Inc. which detailed the proposed surface impoundment closure at the Dan River plant. [28] The closure plan included a "brownfield" strategy that involved the following:

1. the construction of a new landfill disposal facility at the site of the existing ash area;
2. the capping of the existing fill area and using new landfill for future waste disposal or for the relocation of existing waste.

However, on April 28, 2014, two months after the Dan River spill, AMEC submitted another plan. So, the Company changed its strategy for the Dan River plant from keeping the coal ash at its existing location to excavating the coal ash and moving it to a site that had previously not been used for coal ash storage.

Given the fact that DEC abruptly changed its remediation plans at the Dan River site in the wake of its spill at that site to a more costly remedy, I recommend to the Commission that Duke stockholders, not ratepayers, bear the incremental cost associated with the change in closure plans at Dan River. As is the case with my recommended disallowance at the WS Lee site, the cost of my disallowance is confidential, and I am awaiting those details now from DEC in a discovery response.

[28] NCUC Docket NO. E-7, Sub 1146, Kerin Public Staff Cross Ex. 6 (Ex. Vol. 16, Part 1, pp. 111-137)

Q. DO YOU HAVE ANY CONCERN WITH DUKE'S ACCOUNTING FOR COAL ASH REMEDIATION COSTS?

A. Yes. Statement of Financial Accounting Standards (SFAS) 143 set a guideline for when a company should establish an asset retirement obligation (ARO). In essence, SFAS 143 requires that companies establish the ARO liability in the period in which the liability was incurred. In the DEC – NC case, the Company maintained that it did not become subject to SFAS 143 until the creation of the North Carolina CAMA legislation and the federal CCR. The Company further maintains that prior to it being subject to SFAS 143 that it did not include any closure costs for its coal ash ponds in depreciation rates. The issue now before this Commission is whether it was prudent for the Company not to have sought recovery of the coal ash costs in prior rate cases.

Q. WERE COAL ASH REMEDIATION COSTS A TOPIC OF CONCERN IN THE ELECTRIC INDUSTRY PRIOR TO 2014, WHICH IS THE YEAR THAT THE CAMA LEGISLATION BECAME LAW?

A. Yes, in October 1981, the Electric Power Research Institute (EPRI) published a manual entitled "Coal Ash Disposal Manual Second Edition." [29] In 1982, EPRI published another such manual dealing with existing coal ash storage and disposal facilities.[30] In 2004, EPRI published another manual that, specifically, warned utilities of the serious environmental issues associated with coal ash disposal. [31] Even with these various publications dating back to 1981, Duke did not establish AROs associated with coal ash until the promulgation of CAMA and the CCR in 2014.

[29] NCUC Docket No.E-7, Sub 1146, Kerin Sierra Club Cross Ex. 4 (Ex. Vol. 16, Part 1, pp. 281-356;

[30] NCUC Docket No.E-7, Sub 1146, Kerin Sierra Club Cross Ex. 4 (Ex. Vol. 16, Part 1, pp. 224-262

[31] NCUC docket No. E-7, Sub 1146, Tr. Vol. 16, Part 1, p. 704.

Duke could have, and should have, sought recovery of the coal ash costs in much earlier rate cases. To the extent that it did not, the Company has now created a conflict for this Commission which can be summed up in the following question:

> Should current and future DEC customers pay for expenses that were incurred to serve past customers?

Q. DO YOU HAVE A SPECIFIC DISALLOWANCE RECOMMENDATION TO THIS COMMISSION IN REGARD TO THE TIMING OF DUKE'S ACCOUNTING OF COAL ASH COSTS?

A. Yes. I have read the well-reasoned dissent of NCUC Commissioner Dan Clodfelter in Docket No. E-7, Sub 1146 and will adopt, as my own, his analysis and recommendation that DEC North Carolina be disallowed $133.6 million in coal ash closure costs for failing to request these expenses in earlier years when knowledge of potential closure costs were well known throughout the industry. [32] Based on my analysis, the corresponding disallowance would be $46.7million for South Carolina,

Q. CAN YOU PUT DUKE'S COAL ASH COSTS INTO PERSPECTIVE RELATIVE TO OTHER UTILITIES AROUND THE COUNTRY?

A. Yes. Using data obtained from SNL Financial, I extracted AROs on the books of utilities from across the country. I then ranked the utilities by AROs from largest to smallest.

Table 7: Total AROs

Company Name	ARO 2017
Duke Energy Progress, LLC	$ 4,673,454
Duke Energy Carolinas, LLC	$ 3,609,220

[32] Dissent opinion of Commissioner Dan Clodfelter in NCUC Docket NO. E-7, Sub 1146, p. 31

Georgia Power Company	$	2,637,679
DTE Electric Company	$	2,124,863
Florida Power & Light Company	$	2,030,679
Alabama Power Company	$	1,583,682
Virginia Electric and Power Company	$	1,365,061
Indiana Michigan Power Company	$	1,321,774
Entergy Arkansas, LLC	$	981,213
Duke Energy Indiana, LLC	$	781,284
Duke Energy Florida, LLC	$	741,078
Arizona Public Service Company	$	670,719
Kansas Gas and Electric Company	$	343,408
Kansas City Power & Light Company	$	266,280
Kentucky Utilities Company	$	234,929
PacifiCorp	$	214,901
Mississippi Power Company	$	173,851
Portland General Electric Company	$	166,979
Public Service Company of New Mexico	$	145,707
Gulf Power Company	$	142,292
Appalachian Power Company	$	124,979
Southwestern Electric Power Company	$	92,758
Nevada Power Company	$	79,819
ALLETE (Minnesota Power)	$	77,391
Oklahoma Gas and Electric Company	$	75,106
Westar Energy (KPL)	$	61,709
Public Service Company of Oklahoma	$	54,015
Kentucky Power Company	$	51,238
Tampa Electric Company	$	47,370
Tucson Electric Power Company	$	45,356
Monongahela Power Company	$	41,782
KCP&L Greater Missouri Operations Company	$	34,772
Southwestern Public Service Company	$	28,524
Idaho Power Company	$	26,415
Empire District Electric Company	$	21,287
Entergy Mississippi, LLC	$	9,219
Otter Tail Power Company	$	8,719
Dayton Power and Light Company	$	8,035
Cleco Power LLC	$	7,976
Wheeling Power Company	$	7,021
Entergy Texas, Inc.	$	6,835
Ohio Power Company	$	1,661
Black Hills Power, Inc.	$	-

1

The above data represents total AROs for these utilities. I quickly realized that the AROs needed to be segregated for coal ash costs only. As a result, I researched the 2017 individual financial statements of the 25 utilities with the highest AROs extracted from SNL Financial to segregate the coal ash AROs from other items not related to coal ash. The results of this analysis can be seen in Table 8 below.

Table 8: Coal Ash ONLY AROs

Rank	Company Name	Coal Ash AROs ($000)
1	Duke Energy Progress, LLC	$ 2,075,000 [33]
2	Duke Energy Carolinas, LLC	$ 1,629,000 [34]
3	Georgia Power Company	$ 1,424,000
4	Duke Energy Indiana, LLC	$ 763,000
5	Virginia Electric and Power Company	$ 624,000
6	Alabama Power Company	$ 324,000
7	DTE Electric Company	$ 225,000
8	Mississippi Power Company	$ 173,851
9	Gulf Power Company	$ 142,292
10	Kentucky Utilities Company	$ 142,292
11	Arizona Public Service Company	$ 139,000
12	Kansas City Power & Light Company	$ 91,400
13	Kansas Gas and Electric Company	$ 74,300
14	Public Service Company of New Mexico	$ 33,396
15	CLECO	$ 28,524
16	Portland General Electric Company	$ 23,000
17	Indiana Michigan Power Company	$ 21,774
18	Duke Energy Florida, LLC	$ 19,000
19	Florida Power & Light Company	$ -
20	Entergy Arkansas, LLC	$ -

There were 6 utilities for which I could not determine a coal ash ARO. Those companies were Nevada Power, Public Service of Oklahoma, Allete, Empire

[33] Duke Energy 10-k, page 183

[34] id

District, Kentucky Power, and Dayton Power & Light. The highest ARO, however, in this group, is only $266 million

As can be seen in the table above, the Duke AROs specific to coal ash are MUCH greater than the coal ash AROs from other utilities. On the surface, this table strongly implies that the North Carolina CAMA legislation is much more stringent than the CCR requirements.

Q. DID YOU DO ANY FURTHER ANALYSIS ON THE COAL ASH AROs AS STATED BY DUKE RELATIVE TO OTHER UTILITIES?

A. Yes. I recognize that Duke may have a greater amount of coal generation relative to other utilities in the country. To normalize for the difference in coal ash generation across the country, I also examined the established AROs relative to the amount of coal ash that is present for each utility in the above-stated table. To be specific, I calculated a ratio of coal ash AROs relative to the KWHs of coal generation for each utility. I determined the amount of KWHs of historical coal generation by multiplying the amount of coal generation of each utility by the average age of the utility's coal generation fleet by an assumed capacity factor of 65%. Lastly, I sorted the ratio of coal ash AROs by KWHs of coal generation to calculate a ratio for each utility. The results of this analysis can be seen in Table 9 below.

Table 9: Coal Ash ARO per KWH of Generation

Rank	Company	Calculated ARO per kWh of Generation
1	Duke Energy Progress, LLC	$ 0.002168
2	Mississippi Power Company	$ 0.001392
3	Duke Energy Carolinas, LLC	$ 0.000892
4	Georgia Power Company	$ 0.000860
5	Duke Energy Indiana, LLC	$ 0.000697
6	Virginia Electric and Power Company	$ 0.000551
7	Gulf Power Company	$ 0.000298
8	Arizona Public Service Company	$ 0.000290
9	Alabama Power Company	$ 0.000274
10	Kentucky Utilities Company	$ 0.000274
11	Kansas Gas and Electric Company	$ 0.000254
12	Public Service Company of New Mexico	$ 0.000147
13	Kansas City Power & Light Company	$ 0.000145
14	DTE Electric Company	$ 0.000123
15	Portland General Electric Company	$ 0.000123
16	Indiana Michigan Power Company	$ 0.000071
17	Duke Energy Florida, LLC	$ 0.000063
18	CLECO	$ 0.000057
19	Florida Power & Light Company	$ -
20	Entergy Arkansas, LLC	$ -

Q. HOW DO DEC AND DEP COMPARE TO NEIGHBORING UTILITIES THAT OPERATE IN SIMILAR GEOGRAPHIC CLIMATES?

A. In Table 10 below I have provided a comparison of how DEC and DEP compare to neighboring utilities.

Table 10: Coal Ash ARO per KWH of Generation

Company	Calculated ARO per kWh of Generation	
Duke Energy Progress, LLC	$	0.002168
Mississippi Power Company	$	0.001392
Duke Energy Carolinas, LLC	$	0.000892
Georgia Power Company	$	0.000860
Virginia Electric and Power Company	$	0.000551
Gulf Power Company	$	0.000298
Alabama Power Company	$	0.000274
Kentucky Utilities Company	$	0.000274
Duke Energy Florida, LLC	$	0.000063
CLECO	$	0.000057

Q. CAN YOU PROVIDE A COST COMPARISON BETWEEN WHAT DUKE MANUFACTURING CUSTOMERS ARE BEING ASKED TO PAY FOR COAL ASH RELATIVE TO WHAT MANUFACTURERS IN NEIGHBORING STATES ARE BEING ASKED TO PAY FOR COAL ASH REMEDIATION?

A. Yes. Using a 20 MW manufacturing load with an 85% load factor, the cost to the DEC manufacturer would be $132,837 as opposed to the average cost in other southeastern states of $70,160. The cost disparity for DEP customers is even greater as this same 20 MW load with an 85% load factor would have annual costs of $322,859.

The above-stated cost difference over an estimated 10-year cleanup span could very well mean the difference of ongoing viability of many manufacturing jobs in the Carolinas. To the extent that the Commission determines Duke has

responsibility for cleaning up its coal ash ponds, and I believe they should, Duke stockholders should shoulder the burden.

Q. WHAT IS THE TOTAL AMOUNT OF YOUR RECOMMENDED COAL ASH DISALLOWANCE IN THIS CASE?

A. My recommended disallowance for the Company's coal ash request is 75%, but my recommendation may change pending the response from DEC in certain SCEUC discovery items. My 75% disallowance recommendation is the same as my recommendation before the North Carolina Utilities Commission in DEC's 2018 general rate case.

Stockholders need to be held accountable for the actions of Duke executives that led to the Dan River spill that led, in turn, to the passage of CAMA. Given the fact that the DEC coal ash costs are so much higher than utilities operating in a similar manner, the stockholders should shoulder the burden of 75% of the coal ash costs.

4. Hourly Pricing Rates

Q. DOES DUKE OFFER A REAL-TIME HOURLY PRICE RATE?

A. Yes, it does.

Q. DO DEC INDUSTRIAL CONSUMERS TAKE ADVANTAGE OF THE HOURLY PRICING RATE OFFERED BY DEC?

A. Yes, but in the past two years, I have heard consistent complaints from manufacturers regarding the excessive prices of Duke hourly prices in relation to prices found in other parts of the country and, in particular, with a neighboring state, Georgia.

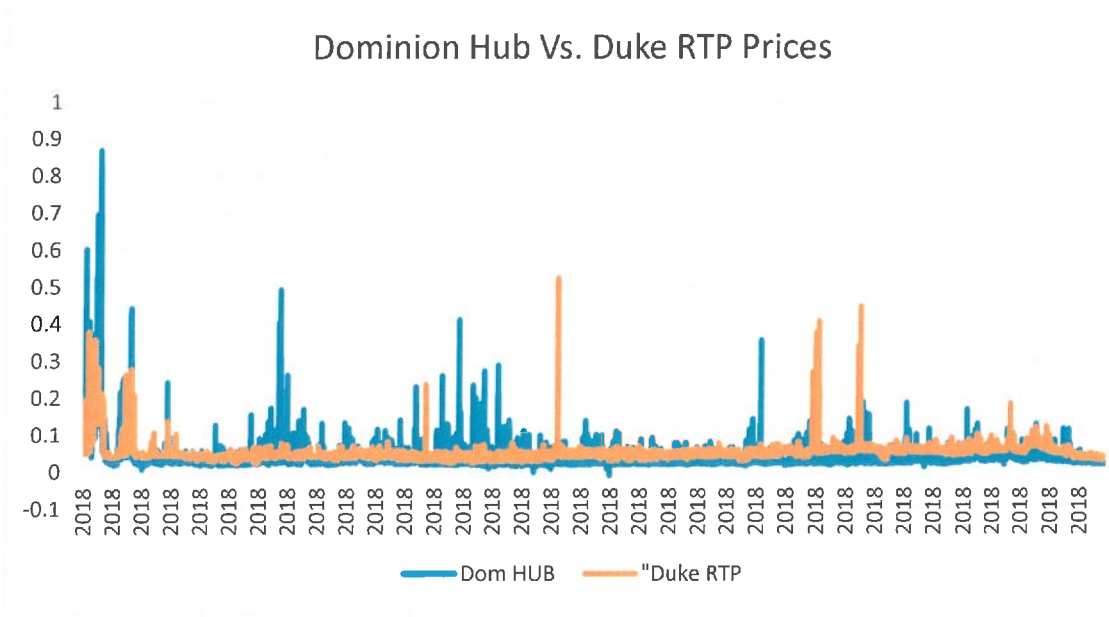
Q. PLEASE EXPLAIN THE CONCERN ABOUT DUKE'S HOURLY PRICES RELATIVE TO PRICES IN OTHER PARTS OF THE COUNTRY.

A. Duke operates a closed system as it relates to its hourly prices to consumers. The price offered to consumers on an hourly basis is the DEC marginal cost for its generation. However, at the same time DEC is selling marginal cost power to its RTP customers, the Company is also operating in the competitive wholesale power market where opportunity purchases and sales are being made. There may be times throughout the year when DEC's marginal cost of power offered to its manufacturing customers is greater than the price the Company could pay for that same power in the open wholesale market. Unfortunately, since Duke operates a closed system and prices its RTP costs at its own marginal costs, manufacturers are paying higher costs than necessary. On the same front, by failing to take advantage of lower cost power on the wholesale market, Duke is also needlessly running its higher cost generating plants adding to higher fuel costs paid by all consumers.

Q. DO YOU HAVE ANY EVIDENCE THAT DEC'S HOURLY PRICING RATES WERE ABOVE OPEN MARKET COSTS IN THE PAST?

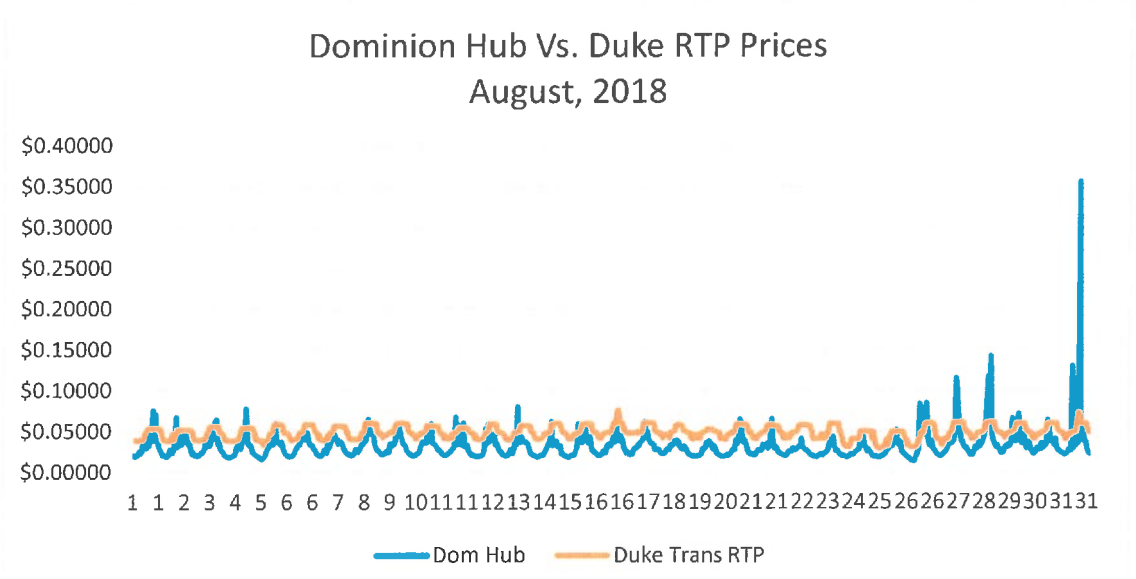
A. Yes. Chart 4 below provides Duke's RTP rates at the transmission level for each hour as compared to data from the closest competitively traded hub, which is the Dominion Hub of the PJM market. This graph shows the values are close, but these values are deceptive. Upon closer examination of this graph, one can see that the Dominion Hub line is consistently below the Duke RTP rate line, meaning that the costs on the Dominion Hub are lower than the Duke RTP costs.

Chart 4: Dominion Hub (Competitive) vs. Duke RTP Costs (Monopoly)



This pricing difference can be seen succinctly in a single month in the chart below for August 2018

Chart 5: Daily Pricing Difference Between Dominion Hub and Duke RTP



Q. HOW DOES THE FACT THAT DUKE'S RTP RATES BEING HIGHER THAN THE DOMINION HUB AFFECT MANUFACTURERS IN SOUTH CAROLINA?

A. A manufacturer with a 20 MW load in Duke's territory would have paid an additional $2.5 million for electricity, excluding transmission costs, than had the manufacturer purchased that same power from the Dominion Hub. Clearly, Duke's high RTP costs reduce manufacturing cost competitiveness in South Carolina.

Q. DO YOU HAVE ANY RECOMMENDATION FOR DEC IN AMENDING ITS RTP RATE SCHEDULE IN THIS PROCEEDING?

A. DEC's hourly pricing should be set at the lower of the Company's marginal cost or the price as set by the open wholesale power market, as adjusted for transmission costs and line losses to move the power to the DEC service territory.

The above recommendation to improve the DEC hourly pricing rates is but one way that Duke can improve its relationship with its business customers.

V. RECOMMENDATIONS AND CONCLUSION

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSIS IN THIS CASE.

A. I began my analysis in this case by examining the DEC rates relative to utilities across the United States and, in particular, the southeast. My conclusion follows: DEC's industrial rates are losing its competitive position and will soon be above the national average if the Commission approves of Duke's long-term plan of multiple rate cases over the next 10 years;

On the issue of grid investment expenses, the evidence shows Duke's consumers are simply not willing to pay for massive rate hikes to enjoy a potential increase in system reliability, and Duke is unwilling to guarantee any such improvement

in reliability. While some sort of grid investment may be warranted, the rate hikes requested by Duke in this proceeding are unreasonable, particularly in light of the fact that Duke was reported to have been recently fined $10 million by the NERC for repeated cybersecurity lapses since 2015.

My recommendation is the Commission deny Duke's rate hikes associated with grid modernization and establish a separate proceeding and retain an independent engineering firm that will assist the Commission in investigating the benefits and disadvantages of Duke's grid investments. I further recommend that Duke be required to have public forum whereby it seeks a wide range of input from the general public into a series of questions developed to optimize the proper magnitude of the Duke grid investments. Such a public input forum is particularly needed in light of the magnitude of the rate increases Duke anticipates through its grid investments.

In regard to coal ash, I have provided evidence in this proceeding that the Dan River spill caused the passage of the Coal Ash Management Act (CAMA) in North Carolina. After the coal ash spill, the federal government investigated the actions of Duke Energy at its coal ash ponds and subsequently charged the Company with nine violations of the Clean Water Act. Duke and the federal government reached a plea deal where Duke admitted guilt and was fined $102 million.

South Carolina should pay for coal ash costs that are the result of prudent operations. However, Duke's admission of guilt to imprudent operation of its coal ash ponds resulted in the passage of CAMA. My analysis attempted to determine a dividing line between Company actions before-and-after CAMA. South Carolina consumers should not be asked to bear a burden due to North Carolina statutes.

My recommendation is the Commission disallow 75% of the coal ash costs Duke is seeking to recover in this proceeding.

Finally, the Commission should order DEC to change its hourly pricing rates to guarantee manufacturers that in its service territory are receiving the lower cost power available, either by DEC, itself, or in the marketplace.

Q. DOES THIS CONCLUDE YOUR PREPARED DIRECT TESTIMONY?

A. Yes.

Appendix A

Kevin W. O'Donnell, CFA

Nova Energy Consultants, Inc. (Nova)

1350-101 SE Maynard Rd.
Cary, NC
919-461-0270
919-461-0570 (fax)
kodonnell@novaenergyconsultants.com

Kevin W. O'Donnell, is the founder of Nova Energy Consultants, Inc. in Cary, NC. Mr. O'Donnell's academic credentials include a B.S. in Civil Engineering - Construction Option from North Carolina State University as well as a MBA in Finance from Florida State University. Mr. O'Donnell is also a Chartered Financial Analyst (CFA).

Mr. O'Donnell has over thirty-four years of experience working in the electric, natural gas, and water/sewer industries. He is very active in municipal power projects and has assisted numerous southeastern U.S. municipalities cut their wholesale cost of power by as much as 67%. On Dec. 12, 1998, ***The Wilson Daily Times*** made the following statement about O'Donnell.

> **Although we were skeptical of O'Donnell's efforts at first, he has shown that he can deliver on promises to cut electrical rates.**

Through 2018, Mr. O'Donnell has completed over 26 wholesale power projects for municipal and university-owned electric systems throughout North and South Carolina. In May of 1996 Mr. O'Donnell testified before the U.S. House of Representatives, Committee on Commerce, Subcommittee on Energy and Power regarding the restructuring of the electric utility industry.

Mr. O'Donnell has appeared as an expert witness in 100 regulatory proceedings before the North Carolina Utilities Commission, the South Carolina Public Service Commission, the Virginia Corporation Commission, the Minnesota Public Service Commission, the New Jersey Board of Public Utilities, the Colorado Public Service Commission, Public Service Commission of the District of Columbia, the Maryland Public Service Commission, the Public Utility Commission of Texas, the Wisconsin Public Service Commission, and the Florida Public Service Commission. His area of expertise has included rate design, cost of service, rate of return, capital structure, natural gas expansion feasibility studies, fuel adjustments, merger transactions, cogeneration studies, holding company applications, as well as numerous other accounting, financial, and utility rate-related issues.

Mr. O'Donnell is the author of the following two articles: "Aggregating Municipal Loads: The Future is Today" which was published in the Oct. 1, 1995 edition of *Public Utilities Fortnightly;* and "Worth the Wait, But Still at Risk" which was published in the May 1, 2000 edition of *Public Utilities Fortnightly.* Mr. O'Donnell is also the co-author of "Small Towns, Big Rate Cuts" which was published in the January, 1997 edition of *Energy Buyers Guide.* All of these articles discuss how rural electric systems can use the wholesale power markets to procure wholesale power supplies.

Regulatory Cases of Kevin W. O'Donnell, CFA
Nova Energy Consultants, Inc.

Year	Name of Applicant	State Jusrisdiction	Docket No.	Client/ Employer	Case Issues
1985	Public Service Company of NC	NC	G-5, Sub 200	Public Staff of NCUC	Return on equity, capital structure
1985	Piedmont Natural Gas Company	NC	G-9, Sub 251	Public Staff of NCUC	Return on equity, capital structure
1986	General Telephone of the South	NC	P-19, Sub 207	Public Staff of NCUC	Return on equity, capital structure
1987	Public Service Company of NC	NC	G-5, Sub 207	Public Staff of NCUC	Return on equity, capital structure
1988	Piedmont Natural Gas Company	NC	G-9, Sub 278	Public Staff of NCUC	Return on equity, capital structure
1989	Public Service Company of NC	NC	G-5, Sub 246	Public Staff of NCUC	Return on equity, capital structure
1990	North Carolina Power	NC	E-22, Sub 314	Public Staff of NCUC	Return on equity, capital structure
1991	Duke Energy	NC	E-7, Sub 487	Public Staff of NCUC	Return on equity, capital structure
1992	North Carolina Natural Gas	NC	G-21, Sub 306	Public Staff of NCUC	Natural gas expansion fund
1992	North Carolina Natural Gas	NC	G-21, Sub 307	Public Staff of NCUC	Natural gas expansion fund
1995	Penn & Southern Gas Company	NC	G-3, Sub 186	Public Staff of NCUC	Return on equity, capital structure
1995	North Carolina Natural Gas	NC	G-21, Sub 334	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
1995	Carolina Power & Light Company	NC	E-2, Sub 680	Carolina Utility Customers Assoc.	Fuel adjustment proceeding
1995	Duke Power	NC	E-7, Sub 559	Carolina Utility Customers Assoc.	Fuel adjustment proceeding
1996	Piedmont Natural Gas Company	NC	G-9, Sub 378	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
1996	Piedmont Natural Gas Company	NC	G-9, Sub 382	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
1996	Public Service Company of NC	NC	G-5, Sub 356	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
1996	Cardinal Extension Company	NC	G-39, Sub 0	Carolina Utility Customers Assoc.	Capital structure, cost of capital
1997	Public Service Company of NC	NC	G-5, Sub 327	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
1998	Public Service Company of NC	NC	G-5, Sub 386	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
1998	Public Service Company of NC	NC	G-5, Sub 386	Carolina Utility Customers Assoc.	Natural gas transporation rates
1999	Public Service Company of NC/SCANA	NC	G-5, Sub 400	Carolina Utility Customers Assoc.	Merger case
1999	Public Service Company of NC/SCANA	NC	G-43	Carolina Utility Customers Assoc.	Merger Case
1999	Carolina Power & Light Company	NC	E-2, Sub 753	Carolina Utility Customers Assoc.	Holding company application
1999	Carolina Power & Light Company	NC	G-21, Sub 387	Carolina Utility Customers Assoc.	Holding company application
1999	Carolina Power & Light Company	NC	P-708, Sub 5	Carolina Utility Customers Assoc.	Holding company application
2000	Piedmont Natural Gas Company	NC	G-9, Sub 428	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
2000	NUI Corporation	NC	G-3, Sub 224	Carolina Utility Customers Assoc.	Holding company application
2000	NUI Corporation/Virginia Gas Compan	NC	G-3, Sub 232	Carolina Utility Customers Assoc.	Merger application
2001	Duke Power	NC	E-7, Sub 685	Carolina Utility Customers Assoc.	Emission allowances and environmental compliance costs
2001	NUI Corporation	NC	G-3, Sub 235	Carolina Utility Customers Assoc.	Tariff change request.
2001	Carolina Power & Light Company/Prog	NC	E-2, Sub 778	Carolina Utility Customers Assoc.	Asset transfer case
2001	Duke Power	NC	E-7, Sub 694	Carolina Utility Customers Assoc.	Restructuring application
2002	Piedmont Natural Gas Company	NC	G-9, Sub 461	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
2002	Cardinal Pipeline Company	NC	G-39, Sub 4	Carolina Utility Customers Assoc.	Cost of capital, capital structure
2002	South Carolina Public Service Commiss	SC	2002-63-G	South Carolina Energy Users Committee	Rate of return, accounting, rate design, cost of service
2003	Piedmont Natural Gas/North Carolina I	NC	G-9, Sub 470	Carolina Utility Customers Assoc.	Merger application
2003	Piedmont Natural Gas/North Carolina I	NC	G-9, Sub 430	Carolina Utility Customers Assoc.	Merger application
2003	Piedmont Natural Gas/North Carolina I	NC	E-2, Sub 825	Carolina Utility Customers Assoc.	Merger application
2003	Carolina Power & Light Company	NC	E-2, Sub 833	Carolina Utility Customers Assoc.	Fuel case
2004	South Carolina Electric & Gas	SC	2004-178-E	South Carolina Energy Users Committee	Return on equity, capital structure, rate design, cost of service
2005	Carolina Power & Light Company	NC	E-2, Sub 868	Carolina Utility Customers Assoc.	Fuel case

Regulatory Cases of Kevin W. O'Donnell, CFA
Nova Energy Consultants, Inc.

Year	Name of Applicant	State Jusrisdiction	Docket No.	Client/ Employer	Case Issues
2005	Piedmont Natural Gas Company	NC	G-9, Sub 499	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
2005	South Carolina Electric & Gas	SC	2005-2-E	South Carolina Energy Users Committee	Fuel application
2005	Carolina Power & Light Company	SC	2006-1-E	South Carolina Energy Users Committee	Fuel application
2006	IRP in North Carolina	NC	E-100, Sub 103	Carolina Utility Customers Assoc.	Submitted rebuttal testimony in investigation of IRP in NC.
2006	Piedmont Natural Gas Company	NC	G-9, Sub 519	Carolina Utility Customers Assoc.	Creditworthiness issue
2006	Public Service Company of NC	NC	G-5, Sub 481	Carolina Utility Customers Assoc.	Return on equity, capital structure, rate design, cost of service
2006	Duke Power	NC	E-7, 751	Carolina Utility Customers Assoc.	App to share net revenues from certain wholesale pwr trans
2006	South Carolina Electric & Gas	SC	2006-192-E	South Carolina Energy Users Committee	Fuel application
2007	Duke Power	NC	E-7, Sub 790	Carolina Utility Customers Assoc.	Application to construct generation
2007	South Carolina Electric & Gas	SC	2007-229-E	South Carolina Energy Users Committee	Rate of return, accounting, rate design, cost of service
2008	South Carolina Electric & Gas	SC	2008-196-E	South Carolina Energy Users Committee	Base load review act proceeding
2009	Western Carolina University	NC	E-35, Sub 37	Western Carolina University	Rate of return, accounting, rate design, cost of service
2009	Duke Power	NC	E-7, Sub 909	Carolina Utility Customers Assoc.	Cost of service, rate design, return on equity, capital structure
2009	South Carolina Electric & Gas	SC	2009-261-E	South Carolina Energy Users Committee	DSM/EE rate filing
2009	Duke Power	SC	2009-226-E	South Carolina Energy Users Committee	Return on equity, capital structure, rate design, cost of service
2009	Tampa Electric	FL	080317-EI	Florida Retail Federation	Return on equity, capital structure
2010	Duke Power	SC	2010-3-E	South Carolina Energy Users Committee	Fuel application - assisted in settlement
2010	South Carolina Electric & Gas	SC	2009-489-E	South Carolina Energy Users Committee	Return on equity, capital structure, rate design, cost of service
2010	Virginia Power	VA	PUE-2010-00006	Mead Westvaco	Rate design
2011	Duke Energy	SC	2011-20-E	South Carolina Energy Users Committee	Nuclear construction financing
2011	Northern States Power	MN	E002/GR-10-971	Xcel Large Industrials	Return on equity, capital structure
2011	Virginia Power	VA	PUE-2011-0027	Mead Westvaco	Capital structure, revenue requirement
2011	Duke Energy	NC	E-7, Sub 989	Carolina Utility Customers Assoc.	Accounting, cost of service, rate design, ROE, capital structure
2011	Duke Energy	SC	2011-271-E	South Carolina Energy Users Committee	Accounting, cost of service, rate design, ROE, capital structure
2011	Dominion Virginia Power	VA	PUE-2011-00073	Mead Westvaco	Rate design
2012	Town of Smithfield/Partners Equity Gr	NC	ES-160, Sub 0	Partners Equity Group	Rate design, asset valuation
2012	Florida Power & Light	FL	120015-EI	Florida Office of Public Counsel	Capital structure
2012	South Carolina Electric & Gas	SC	2012-218-E	South Carolina Energy Users Committee	Accounting, cost of service, rate design, ROE, capital structure
2013	Progress Energy Carolinas	NC	E-2, Sub 1023	Carolina Utility Customers Assoc.	Accounting, cost of service, rate design, ROE, capital structure
2013	Duke Energy Carolinas	NC	E-7, Sub 1026	Carolina Utility Customers Assoc.	Rate design
2013	Jersey Central Power & Light	NJ	BPU ER12111052	Gerdau Ameristeel	Return on equity, capital structure
2013	Duke Energy Carolinas	SC	2013-59-E	South Carolina Energy Users Committee	Accounting, cost of service, rate design, ROE, capital structure
2013	Tampa Electric	FL	130040-EI	Florida Office of Public Counsel	Capital structure and financial integrity
2013	Piedmont Natural Gas	NC	G-9, Sub 631	Carolina Utility Customers Assoc.	Accounting, cost of service, rate design, ROE, capital structure
2014	Dominion Virginia Power	VA	PUE-2014-00033	Mead Westvaco	Recoverable fuel costs, hedging strategies
2014	Public Service Company of Colorado	CO	14AL-0660E	Colorado Healthcare Electric Coordinating Council	Return on equity, capital structure
2015	WEC Acquisition of Integrys	WI	9400-YO-100	Staff of Wisconsin Public Service Commission	Merger analysis
2015	Dominion Virginia Power	VA	PUE-2015-00027	Federal Executive Agencies	Return on equity
2015	South Carolina Electric & Gas	SC	2015-103-E	South Carolina Energy Users Committee	Return on equity
2015	Western Carolina University	NC	E-35, Sub 45	Western Carolina University	Accounting, cost of service, rate design, ROE, capital structure
2016	Sandpiper Energy	MD	9410	Maryland Office of People's Counsel	Return on equity, capital structure
2016	Washington Gas Light	DC	FC 1137	Washington, DC Office of People's Counsel	Return on equity, capital structure

Regulatory Cases of Kevin W. O'Donnell, CFA
Nova Energy Consultants, Inc.

Year	Name of Applicant	State Jusrisdiction	Docket No.	Client/ Employer	Case Issues
2016	Florida Power & Light	FL	160021-EI	Florida Office of Public Counsel	Capital Structure
2016	Jersey Central Power & Light	NJ	EM15060733	NJ Division of Rate Counsel	Asset valuation
2016	Rockland Electric Company	NJ	ER16050428	NJ Division of Rate Counsel	Rate design
2016	Dominon NC Power	NC	E-22, Sub 532	Carolina Utility Customers Assoc.	Accounting, cost of service, rate design, ROE, capital structure
2017	Potomac Electric Power	DC	FC 1139	Healthcare Council of the National Capitol Area (HCNCA)	ROE and capital structure
2017	Columbia Gas of Maryland	MD	FC 9447	Maryland Office of People's Counsel	ROE and capital structure
2017	Washington Gas Light	DC	FC 1142	Washington, DC Office of People's Counsel	Merger analysis
2017	Duke Energy Progress	NC	E-2, Sub 1142	Carolina Utility Customers Assoc.	Accounting, cost of service, rate design, ROE, capital structure
2018	Public Service Electric & Gas	NJ	GR17070776	NJ Division of Rate Counsel	ROE and capital structure
2018	Duke Energy Carolinas	NC	E-7, Sub 1146	Carolina Utility Customers Assoc.	Accounting, cost of service, rate design, ROE, capital structure
2018	Elkton Gas/SJI	MD	FC 9475	Maryland Office of People's Counsel	Merger analysis
2018	Entergy Texas	TX	PUC 48371	Public Utilities Commission of Texas	ROE
2018	Duke Energy Carolinas	SC	2018-3-E	South Carolina Energy Users Committee	Fuel case
2018	Elkton Gas Company	MD	FC 9488	Maryland Office of People's Counsel	Accounting, ROE, capital structure
2018	Baltimore Gas & Electric	MD	FC9484	Maryland Office of People's Counsel	ROE, capital structure
2018	South Carolina Electric & Gas	SC	2017-370-E	South Carolina Energy Users Committee	Creditworthiness issue
2018	Jersey Central Power & Light	NJ	EO18070728	NJ Division of Rate Counsel	ROE and capital structure